REMARKS

Claims 1-19 are pending in the application. Claims 12-19 of the pending claims are withdrawn from consideration. Claims 1-11 are rejected. The drawings filed March 22, 2004 are accepted, but formal drawings were filed on June 20, 2004. Examiner's rejections are addressed below in substantially the same order as in the office action.

Claims 1, 2, 8, 9 and 10 have been amended. Support for the amendments to claims 1 and 10 may be found in paragraph [0020] of Applicants' disclosure.

ELECTION/RESTRICTIONS

Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-11, drawn to a method for acquiring seismic data while drilling a well, classified in class 367, subclass 27.

II. Claims 12-19, drawn to a system comprising a surface source, and a seismic receiver installed in a drill string and comprising a sensor, classified in class 367, subclass 25.

Applicant hereby confirms the election to prosecute Group I, claims 1-11. Claims 12-19 are cancelled herein.

REJECTIONS UNDER 35 USC § 112

Claims 2, 8 and 9 are rejected under 35 U.S.C. 112, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 2, 8 and 9 have been amended in response to the Examiner's comments.

REJECTIONS UNDER 35 USC § 102

Claims 1-6 and 10 are rejected under 35 USC § 102(b) as being anticipated by Robbins et al. (US 6,131,694).

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The Examiner's position as regards Claim 1 is that Robbins discloses generating coded seismic signals, and further that Robbins discloses "that the seismic source generates signals at a certain frequency (Columns 3, Line 59 to Column 4, Line)." We respectfully disagree that Robbins discloses generating coded seismic signals. We disagree that Robbins' "seismic signal having a frequency on the order of 50 Hz" is either coded or a certain frequency. The phrase "on the order of" is not indicative of a seismic signal that is at a certain frequency (like a 50 Hz monotone). Practitioners of the art will understand Robbins' disclosure to be directed to a seismic signal with center frequency somewhere around (or on the order of) 50 Hz. Further, while a 50 Hz constant frequency signal could be generated, it would be difficult or impossible to detect a monotone seismic signal with specificity as a first arrival signal at a definite time. A broadband impulse with the widest possible frequency range is generally desired, since broadband signals are easiest to detect. For these reasons, Robbins does not disclose generating coded seismic signals.

In order for a claimed invention to be unpatentable under 35 USC § 102 over a prior art reference, the prior art reference must show each and every limitation of the claimed invention arranged as in the claim. The "generating coded seismic signals by a seismic source at a surface location" limitation of Claim 1 is clearly lacking in the prior art. Accordingly, applicant respectfully submits that Claim 1 and the claims that depend upon Claim 1 are patentable under 35 USC § 102.

Beyond the fact Robbins fails to teach at least one element of independent Claim 1, Applicant further submits that no art of record either alone or when combined with other art of record discloses or suggests all the limitations of the claimed invention. The prior art of record along with combinations of the prior art references do not provide or suggest all the limitations of the present invention. Accordingly, applicant respectfully submits that Claim 1 is allowable over the prior art of record. Further, applicant respectfully submits that Claim 1 and the claims that depend on Claims 1 are allowable.

The Examiner's position with regard to Claim 10 is also that Robbins discloses coded seismic signals, and for the same reasons put forth for Claim. Likewise,

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Applicant for the same reasons discussed above respectfully disagrees that Robbins disclosure of a seismic signals having a frequency on the order of 50 Hz is a disclosure of a coded seismic signal. For these reasons, Robbins does not disclose generating coded seismic signals.

In order for a claimed invention to be unpatentable under 35 USC § 102 over a prior art reference, the prior art reference must show each and every limitation of the claimed invention arranged as in the claim. The "generating coded seismic signals by a seismic source near a surface location" limitation of Claim 10 is clearly lacking in the prior art. Accordingly, applicant respectfully submits that Claim 10 is patentable under 35 USC § 102.

Beyond the fact Robbins fails to teach at least one element of independent Claim 10, Applicant further submits that no art of record either alone or when combined with other art of record discloses or suggests all the limitations of the claimed invention. The prior art of record along with combinations of the prior art references do not provide or suggest all the limitations of the present invention. Accordingly, applicant respectfully submits that Claim 10 is allowable over the prior art of record.

Claims 1-2, 4-5, and 10 are rejected under 35 USC § 102(b) as being anticipated by Eaton (EP1002934A2).

The Examiner's position as regards claims 1 and 10 is that Eaton discloses "generating coded signals 18, 19 and 27 by seismic source 16, 25 at a surface location 17..." We respectfully point out that 18, 19 and 27 are acoustic energy travel paths, not coded signals. See paragraphs [0030], [0033] and [0036] where 18, 19 and 27 are referred to as acoustic paths, not signals. The only disclosure by Eaton as regards an acoustic source appears to be in paragraph [0029], and there is no mention of a coded signal. Using an airgun to generate a pulse with a frequency range of 5 – 100 Hz as called for in Eaton is well known in the art, and is not considered a coded signal. Therefore, Eaton does not disclose a coded seismic signal.

In order for a claimed invention to be unpatentable under 35 USC § 102 over a prior art reference, the prior art reference must show each and every limitation of the

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claimed invention arranged as in the claim. The "generating coded seismic signals by a seismic source at a surface location" limitation of Claim 1 and the "generating coded seismic signals by a seismic source near a surface location" limitation of Claim 10 are clearly lacking in the prior art of Eaton. Accordingly, applicant respectfully submits that Claim 1 and Claim 10 and the claims that depend upon Claim 1 are patentable under 35 USC § 102.

Beyond the fact Eaton fails to teach at least one element of independent Claims 1 and 10, Applicant further submits that no art of record either alone or when combined with other art of record discloses or suggests all the limitations of the claimed invention. The prior art of record along with combinations of the prior art references do not provide or suggest all the limitations of the present invention. Accordingly, applicant respectfully submits that Claims 1 and 10 are allowable over the prior art of record. Further, applicant respectfully submits that Claim 1 and the claims that depend on Claims 1 are allowable.

Claims 1-4, 7-9, and 11 are rejected under 35 USC § 102(e) as being anticipated by Cecconi et al. (US 6,614,718).

The Examiner's position as regards Claim 1 is that Cecconi et al. disclose generating coded seismic signals by a seismic source and we are directed to Column 3, Lines 40-65. However this passage does not appear to support a disclosure of coded seismic signals.

In order for a claimed invention to be unpatentable under 35 USC § 102 over a prior art reference, the prior art reference must show each and every limitation of the claimed invention arranged as in the claim. The "generating coded seismic signals by a seismic source at a surface location" limitation of Claim 1 is clearly lacking in the prior art. Accordingly, applicant respectfully submits that Claim 1 and the claims that depend upon Claim 1 are patentable under 35 USC § 102.

Beyond the fact Cecconi et al. fails to teach at least one element of independent Claim 1, Applicant further submits that no art of record either alone or when combined with other art of record discloses or suggests all the limitations of the claimed invention.

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The prior art of record along with combinations of the prior art references do not provide or suggest all the limitations of the present invention. Accordingly, applicant respectfully submits that Claim 1 is allowable over the prior art of record. Further, applicant respectfully submits that Claim 1 and the claims that depend on Claims 1 are allowable:

The Examiner's position, as regards Claim 11, is that Cecconi discloses:

> generating, under control of a surface processor, coded seismic signals by a seismic source 6 near a surface location (Fig 1a)(Column 3, Lines 29-40; Column 10 Lines 27-34). Cecconi discloses a control module attached to the seismic source, and states that the source transmits wave that detected by the sensors. These transmitted waves are a form of coded signal.

We disagree. There is no indication in Fig. 1a that a seismic source generates a coded signal. In column 3, lines 29-40 there is no indication of a coded seismic signal. The text in column 10, lines 27-34 indicate that shots should be repeated every 20 seconds, but that says nothing about coded seismic signals. We do not agree the control module 10 is attached to the seismic source (see Figures 1a and 1b). The control module appears to be important to the functionality of the downhole clock. There doesn't appear to be any text or claim in Cecconi et al. related to the functionality of the control module relative to the seismic source. We are unable to find any support in Cecconi et al. for the statement "These transmitted waves are a form of coded signal."

In order for a claimed invention to be unpatentable under 35 USC § 102 over a prior art reference, the prior art reference must show each and every limitation of the claimed invention arranged as in the claim. Accordingly, applicant respectfully submits that Claim 1 and the claims that depend upon Claim 1 are patentable under 35 USC § 102.

Beyond the fact Cecconi et al. fails to teach at least one element of independent Claim 1, Applicant further submits that no art of record either alone or when combined with other art of record discloses or suggests all the limitations of the claimed invention. The prior art of record along with combinations of the prior art references do not provide

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or suggest all the limitations of the present invention. Accordingly, applicant respectfully submits that Claim 1 is allowable over the prior art of record. Further, applicant respectfully submits that Claim 1 and the claims that depend on Claims 1 are allowable.

REJECTIONS UNDER 35 USC § 103

Claim 7 is rejected under 35 USC § 103(a) as being unpatentable over Robbins et al. (US 6,131,694) in view of Cecconi et al. (US 6,614,718). Claims 5 and 10 are rejected under 35 USC § 103(a) as being unpatentable over Cecconi et al. (US 6,614,718) on view of Robbins et al. (US 6,131,694).

Because we believe the independent claims are in condition for allowance, we do not address the rejections of claims 5 and 7.

As regards Claim 10, Robbins and Cecconi et al. together do not appear to disclose all the elements of the claimed invention. In order to sustain an obviousness rejection under 35 USC § 103, two requirements must be met. First, the prior art of record must disclose all the limitations of the claimed invention. Robbins and Cecconi et al. together and in combination do not disclose or suggest all the limitations of the claimed invention. Applicant submits that no art of record either alone or when combined with other art of record discloses or suggests all the limitations of the claimed invention. There is no suggestion to combine the prior art of the present case to form the present invention. Accordingly, applicant respectfully submits that Claim 10 is allowable.

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CONCLUSION

For all the foregoing reasons, Applicant submits that the application is in a condition for allowance. No fee is believed due for this paper. The Commissioner is hereby authorized to charge any additional fees or credit any overpayment to Deposit Account No. **02-0429 (414-35351-US)**.

Respectfully submitted,

Dated: September 27, 2005

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CERTIFICATE OF FACSIMILE TRANSMISSION

I do hereby certify that this correspondence is being transmitted via facsimile, to the Commissioner for Patents, Examiner Scott A. Hughes, facsimile no. (571) 273-8300, on this 27th day of September, 2005.

Beth Pearson-Naul

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